EUROPEAN COMMISSION
Information Society and Media Directorate General

Lisbon Strategy and Policies for the Information Society
Lisbon Strategy and i2010

Use of Computers and the Internet in Schools in Europe 2006

Country Brief: Latvia

6 / 2006

Key findings

Almost all Latvian schools now use computers for teaching (98%) and have internet access (94%). 67% use the internet via a broadband connection

Only 41% of the Latvian schools using computers for teaching use them in classrooms with the highest percentage being achieved in vocational schools (56%). Computers in the school library are very widespread in Latvian schools. 67% of the schools provide access to ICT in school libraries with the upper level school being better equipped than the lower level ones. Only in Slovenia and Denmark are schools better equipped with ICT in libraries.

Only 35% of Latvian classroom teachers had used computers in class in the 12 months prior to the survey, with little variation across school types and between urban and rural areas. With this figure, Latvia shows the poorest performance in Europe with respect to the use of ICT in schools.

A vast majority (67%) of the teachers using computers use them in less than 10% of all lessons. Only 5% state that they use computers in more than half of their lessons. Teachers in vocational schools use computers in class much more frequently than their colleagues in general education.

Regardless of the age of teachers, between 30% and 40% have used computers in class, i.e. variations are not very high. Not surprisingly, the younger the teachers (indicator used here: years of teaching experience), the more use they make of computers and the internet in schools in Latvia. While 15% of teachers with more than 20 years of teaching experience use ICT in more than 25% of their lessons, this figure goes up to 37% among those with less than five years of teaching experience.

A very high 65% of teachers in Latvia still do not use computers in class. This is the highest figure of non-users in Europe.

When asked for the most important barrier, three issues gain the highest ratings among this group of teachers: a very large number, 66% state a lack of computers in their schools as an important barrier, 27% lack of adequate material, and 23% express the opinion that teachers lack the necessary skills to utilize computers in their teaching.

This results in a situation where the statement "lack of equipment in school" is expressed by a very high 43% of all Latvian teachers. Although virtually all schools are equipped with at least some computers in Latvia, the above result suggests substantial scope for further ICT-infrastructure improvements at Latvian schools such as an increase of the number of computers in total and per pupil where Latvia dramatically ranks below the European average.

Latvia takes the last or second last position on the availability of all ICT-related skills among teachers which were asked for irrespective of school type. These are alarming figures and urgently demand an active policy and a multitude of activities to improve the present ICT competence and skills of teachers in Latvia.

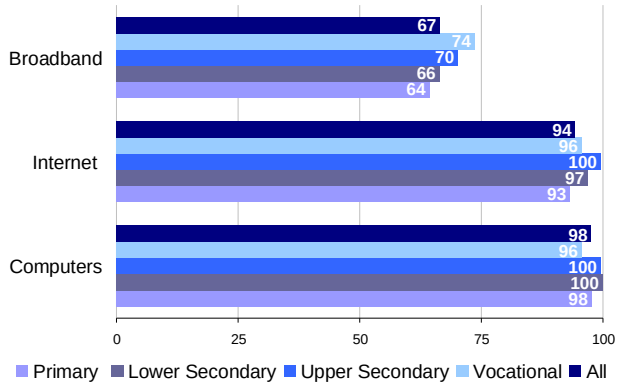
However, there are also positive signs in Latvian schools: interest in the use of ICT in class and the motivation of teachers to use it is rather high. Only 4% state a lack of interest as a problem, but 9% of all teachers are not convinced of any benefits of using computers in class.

The situation in Latvia shows that ICT access and competence of Latvian teachers leaves a lot of room for improvement but motivation and interest for ICT use in class among teachers are substantial.

ICT Equipment and Internet in Schools

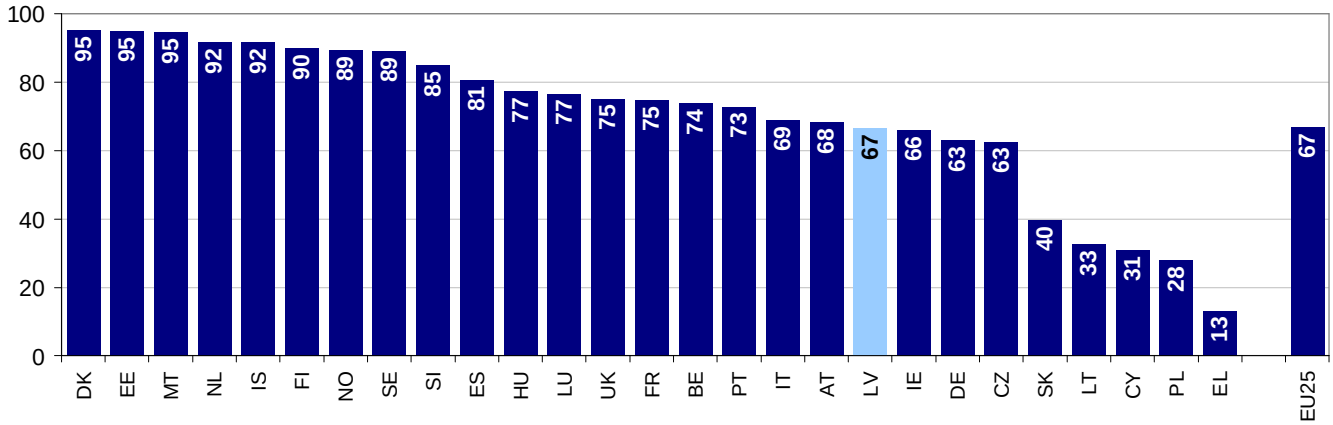
Almost all Latvian schools now use computers for teaching (98%) and have internet access (94%). 67% use the internet via a broadband connection. With this figure Latvia ranks at number 19 of the 27 countries participating in the survey.

Percentage of Schools Using Computers, Internet Connection, and Broadband Internet Access According to School Type in Latvia 2006



Source: *LearnInd HTS 2006;* ***Base:*** *All schools;* ***Question:*** *Computers: Q6; Internet, Broadband: Q9. See questionnaire for exact wording.*

Percentage of Schools with Broadband Internet Access in Europe 2006



Source: *LearnInd HTS 2006;* ***Base:*** *All schools;* ***Question:*** *Q9. See questionnaire for exact wording.*

There is a very little variation between school types: while 64% of primary schools have a broadband internet connection, the penetration is highest among upper vocational schools, with 74%. There is also some variation with regard to broadband access between urban and rural areas, with the thinly populated areas being less well equipped.

Only 41% of schools have a website, 60% offer e-mail to teachers, and 34% do so to pupils. 41% of the Latvian schools using computers for teaching use them in classrooms, with the highest percentage being achieved in vocational schools (56%). Computers in the school library are very widespread in Latvian schools. 67% of the schools provide access to ICT in school libraries, with the upper level school being better equipped than the lower level ones. Only in Slovenia and Denmark are schools better equipped with ICT in libraries.

Those schools with a broadband connection to the internet are much more likely to have a more sophisticated ICT infrastructure including a school website, the use of a LAN or the availability of an intranet.

The use of Computers and the Internet in Schools

Computers are used for various purposes and as part of teaching different subjects in schools but also and very widely as a separate subject.

Computer sciences are taught as a separate subject in 97% of Latvia schools with hardly any difference across type of schools.

Only 35% of Latvian classroom teachers had used computers in class in the 12 months prior to the survey, with little variation across school types and between urban and rural areas. With this figure, Latvia shows the poorest performance in Europe with respect to the use of ICT in

ICT equipment in Latvian schools 2006

				Educational Level (LV)				Type of locality (LV)		Internet Access (LV)	
	Total LV	Total EU25	Total NMS10	Primary	Lower secondary	Upper secondary	Vocational	Densely populated and intermediate	Thinly populated	Narrow-band	Broadband
Computers per 100 pupils [a]	5.9	11.3	7.1	5.5	5.6	5.4	*7.0**	4.7	7.0	6.4	5.7
... of which internet connected	5.1	9.9	6.4	4.8	4.9	4.8	*5.8**	3.9	6.1	5.5	5.0
Percentage of schools having...											
Computers for teaching [b]	97.6	98.7	96.7	97.7	100.0	99.6	*95.6**	95.3	98.4	100.0	100.0
Internet access [c]	94.3	96.2	94.7	93.3	97.0	99.6	*95.6**	94.8	94.1	100.0	100.0
Broadband internet access [d]	66.5	66.9	43.4	64.3	66.5	70.2	*73.7**	72.3	64.4	0.0	100.0
A website [e]	40.6	63.0	66.7	36.3	40.4	61.7	*62.8**	56.4	34.8	44.1	42.7
An e-mail address for the majority of teachers [f]	59.6	65.2	48.1	57.2	60.3	61.1	*62.1**	52.2	62.3	56.9	65.8
An e-mail address for the majority of pupils [g]	33.9	23.5	24.4	33.2	35.3	38.3	*35.3**	31.3	34.9	32.1	37.6
A LAN [h]	54.0	55.2	60.4	55.0	58.6	64.3	*44.2**	55.2	53.6	62.0	55.4
An intranet [i]	33.2	40.8	26.9	31.0	31.2	39.9	*50.8**	41.0	30.3	33.6	35.9
An external support or maintenance contract [j]	68.6	47.1	44.3	67.1	69.6	68.0	*75.2**	57.3	72.8	68.4	74.6
Percentage of schools using computers for education in...											
Computer labs [k]	97.1	80.5	94.6	96.1	99.4	100.0	*100.0**	96.2	97.4	98.3	97.5
Classrooms [l]	40.7	61.4	29.5	36.9	37.6	48.6	*55.6**	47.3	38.3	41.1	40.9
School library [m]	66.5	33.4	36.8	64.6	65.5	75.0	*76.1**	65.5	66.9	73.5	65.8
Other locations accessible for pupils [n]	24.5	27.0	20.2	24.0	22.7	25.4	*32.9**	18.6	26.6	25.5	24.1

Source: *LearnInd HTS 2006;* ***Base:*** *a: all pupils; b-j: all schools, k-n: schools using computers for educational purposes for pupils (cf. index b);* ***Question:*** *a: Q4, Q6, Q7; b: Q6; c: Q9; d: Q9; e-j: Q12; k-n: Q8. See questionnaire for exact wording.* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases.*

Use of computers in class in Latvia 2006

Assessments of the head teacher		Total LV	Total EU25	Total NMS10	Educational Level (LV)				Type of locality (LV)		Internet Access (LV)	
					Primary	Lower secondary	Upper secondary	Vocational	Densely populated and intermediate	Thinly populated	Narrow-band	Broadband
Computer sciences taught as separate subject	Agree	96.5	54.7	91.2	96.6	98.0	96.8	*95.9**	95.5	96.9	98.5	96.2
	Disagree	2.5	43.7	8.4	2.2	1.4	2.2	*4.1**	3.7	2.1	1.5	2.6
	Don't know	0.9	1.6	0.4	1.2	0.6	0.9	*0.0**	0.8	0.9	0.0	1.1
Computers and the internet are												
integrated into teaching of most subjects	Agree	44.5	75.3	73.1	42.2	44.7	42.0	*47.3**	44.0	44.6	50.3	43.3
	Disagree	54.3	24.1	26.4	56.1	54.1	56.5	*52.7**	55.2	53.9	49.1	55.1
	Don't know	1.3	0.6	0.4	1.7	1.2	1.5	*0.0**	0.8	1.5	0.6	1.6
used for teaching traditional subjects or basic skills	Agree	38.9	75.8	72.3	40.7	40.3	34.9	*27.9**	36.3	39.9	35.1	41.2
	Disagree	58.4	22.8	26.0	57.9	58.0	61.1	*62.1**	58.2	58.4	64.4	55.1
	Don't know	2.7	1.4	1.7	1.3	1.7	4.0	*10.0**	5.6	1.6	0.5	3.7
used for teaching foreign languages	Agree	68.8	56.6	71.1	68.4	70.1	68.9	*57.8**	68.5	68.9	70.9	68.5
	Disagree	30.1	40.1	28.0	30.4	29.0	29.7	*42.2**	31.5	29.6	27.3	30.6
	Don't know	1.1	3.3	0.8	1.2	0.8	1.4	*0.0**	0.0	1.5	1.8	0.9
used for teaching students with special needs/ handicaps	Agree	37.1	71.7	58.3	34.9	36.5	32.1	*37.2**	33.6	38.3	40.7	35.7
	Disagree	44.5	23.7	31.6	44.7	44.9	48.6	*46.7**	45.6	44.1	44.4	44.3
	Don't know	18.5	4.6	10.1	20.4	18.6	19.3	*16.1**	20.8	17.6	14.9	19.9

Source: *LearnInd HTS 2006;* ***Base:*** *All schools using computers for educational purposes for pupils;* ***Question:*** *Q13: "To what extent do you agree or disagree with the following statements regarding the educational use of computers and/or the internet in your school?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases.*

For most teachers, the use of ICT includes not only using a computer for presentation purposes but also the use computers by pupils in class.

A vast majority (67%) of the teachers using computers use them in less than 10% of all lessons. Only 5% state that they use computers in more than half of their lessons. Teachers in vocational schools use computers in class much more frequently than their colleagues in general education with around 40% using computers in more than a quarter of their lessons. Most teachers using ICT in class – regardless of type of school and between 38% and 47% – use ICT in less than 5% of their lessons.

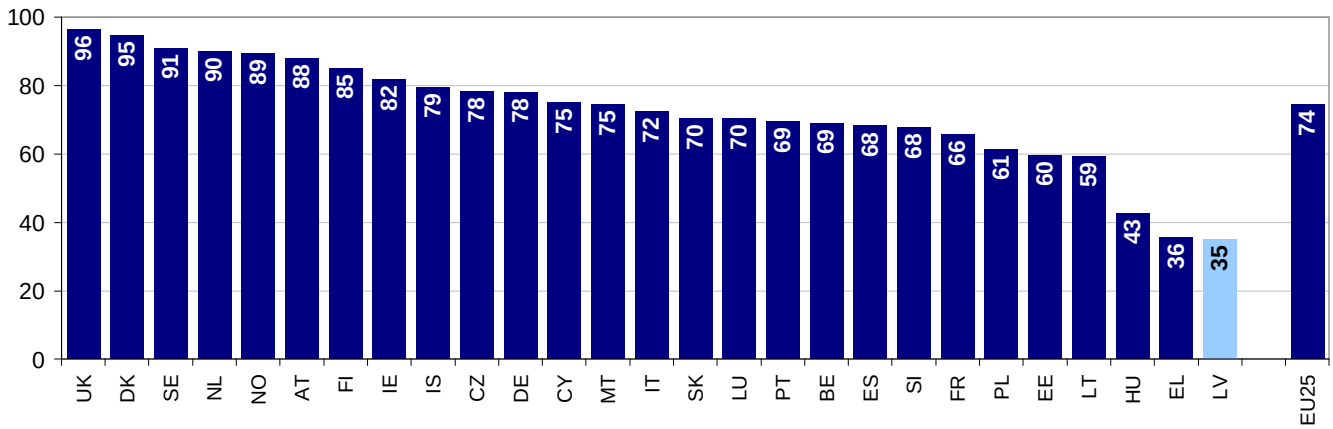
Latvian teachers using computers do not restrict themselves to a particular source of information but use a multitude of different material from a variety of sources for teaching purposes which in most categories is around the European average. They are very active (92%) in searching for material themselves in the internet. This shows a very proactive behaviour.

Regardless of the age of teachers, between 30% and 40% have used computers in class, i.e. variations are not very high. Not surprisingly, the younger the teachers (indicator used here: years of teaching experience), the more use they make of computers and the internet in schools in Latvia. While 15% of teachers with more than 20 years of teaching experience use ICT in more than 25% of their lessons, this figure goes up to 37% among those with less than five years of teaching experience.

Also, the higher the school level, the more use of computers – especially in terms of frequency and intensity – is made by teachers and pupils. 17% of the teachers using computers in class in upper secondary and 31% in vocational schools use these in more than 25% of their lessons, whereas the figure only reaches 13% in primary schools.

A very high 65% of teachers in Latvia still do not use computers in class. This is the highest figure of non-users in Europe.

Percentage of teachers who have used computers in class in the last 12 months (2006)



Source: *LearnInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *Q7. See questionnaire for exact wording*

Teachers' use of computers in class in Latvia 2006

Percentage of teachers who …	Total LV	Total EU25	Total NMS10	Educational Level (LV)				Type of locality (LV)		Years of teaching experience (LV)			
				Primary	Lower secon-dary	Upper secon-dary	Voca-tional	Densely popu-lated and inter-mediate	Thinly popu-lated	<5 y	5-9 y	10-19 y	20+ y
...have used computers in class[1]	34.9	74.3	61.3	35.7	37.8	33.6	27.7	28.3	37.3	28.1	39.9	35.8	33.8
…use a computer in class to present or demonstrate	34.3	63.4	55.5	35.2	37.2	33.0	27.7	28.3	36.6	26.7	38.3	35.8	33.3
…have pupils use a computer in class	32.5	66.3	53.8	33.4	35.9	31.1	25.7	26.3	34.8	28.1	39.0	32.8	30.9

Source: *LearnInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *Q7 "How have you used computers and/or the internet for work in the last 12 months?"*

When asked for the most important barrier, three issues gain the highest ratings among this group of teachers: a very large number (66%) state a lack of computers in their schools as an important barrier, 27% lack of adequate material, and 23% express the opinion that teachers lack the necessary skills to utilize computers in their teaching.

This results in a situation where the statement "lack of equipment in school" is expressed by a very high 43% of all Latvian teachers (65% non-users multiplied with 66% of teachers agreeing to this item).

Although virtually all schools are equipped with at least some computers in Latvia, the above result suggests substantial scope for further ICT-infrastructure improvements at Latvian schools such as an increase of the number of computers in total and per pupil where Latvia dramatically ranks below the European average.

However, there are also positive signs in Latvian schools since interest in the use of ICT in class and the motivation of teachers to use it is rather high. Only 4% state a lack of interest as a problem, and only 13% (compared to a EU25 average of 16%) of those not using ICT are not convinced of any benefits of using computers in class. These are encouraging figures.

Frequency of computers use in class in Latvia 2006

Percentage of all teachers *using computers in class* who …	Total LV	Total EU25	Total NMS10	Educational Level (LV)				Type of locality (LV)		Years of teaching experience (LV)			
				Primary	Lower secon-dary	Upper secon-dary	Voca-tional		Thinly popu-lated	<5 y	5-9 y	10-19 y	20+ y
…use computers in 5% and less of all lessons	43.9	18.5	15.0	46.6	44.4	44.6	*38.1**	33.4	46.9	*40.6**	*37.5**	44.6	46.2
in 6 to 10% of lessons	22.8	22.5	17.7	23.8	24.7	24.1	*7.6**	26.7	21.6	*10.4**	*16.8**	27.9	22.3
in 11 to 24% of lessons	16.6	22.2	22.1	17.2	16.6	14.1	*13.2**	21.0	15.3	*11.6**	*24.7**	14.0	16.5
in 25 to 50% of lessons	11.6	20.2	24.0	8.5	10.1	12.3	*28.2**	10.7	11.8	*26.1**	*12.5**	9.4	10.9
more than 50% of lessons	5.2	16.5	21.3	3.9	4.3	4.9	*12.9**	8.3	4.4	*11.3**	*8.6**	4.1	4.0

Source: *LearnInd CTS 2006;* ***Base:*** *Teachers using computers in class, "don't know" answers excluded;* ***Question:*** *Q9 "For what percentage of time have you used computers and/or the internet in class when teaching your main subject(s) in the past 12 months?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases.*

Source of educational material used in class in Latvia 2006

Percentage of all teachers *using computers in class*[2] who …	**Total LV**	**Total EU25**	**Total NMS10**	**Educational Level**				**Type of locality**	
				Primary	**Lower secondary**	**Upper secondary**	**Vocational**		**Thinly populated**
…use material they have searched the internet for	91.7	82.7	81.8	92.9	91.6	89.8	*95.7**	87.0	93.1
…use existing online material from established educational sources	74.9	74.2	61.8	77.5	76.9	69.9	*64.9**	65.4	77.6
…use material that is available on the school's computer network or database	60.3	63.1	52.7	62.0	60.5	56.2	*53.9**	55.5	61.7
…use electronic offline material (such as CD ROMS)	64.5	83.0	82.2	64.6	65.0	67.7	*62.9**	59.0	66.0
…use other learning material when using computers in class	2.6	8.8	10.8	2.2	1.8	4.3	*12.9**	7.4	1.2

Source: *LearnInd CTS 2006;* ***Base:*** *Teachers using computers in class;* ***Question:*** *Q10 "Which of the following types of materials have you used when teaching your main subject(s) with the aid of a computer and/or the internet?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases.*

Barriers to computer use in class in Latvia 2006

Percentage of all teachers ***not*** *using computers in class*	Total LV	Total EU25	Total NMS10	Educational Level				Type of locality	
				Primary	Lower secondary	Upper secondary	Vocational		Thinly populated
Lack of computers	65.7	48.8	49.0	68.6	67.2	68.2	54.7	65.9	65.6
Lack of adequate content/material	27.2	20.3	16.5	27.4	28.7	23.3	24.6	23.0	29.0
Lack of content in national language	9.8	8.6	5.7	9.0	9.8	7.9	11.8	8.7	10.3
Lack of adequate skills of teachers	22.7	22.5	9.8	24.8	24.5	19.9	20.6	19.3	24.1
No or unclear benefits	13.3	16.2	6.8	14.2	14.2	15.0	15.9	13.5	13.2
Lack of interest of teachers	3.7	8.9	3.3	4.0	3.3	4.1	4.8	2.5	4.2
Subject does not lend itself to being taught via computers	23.9	24.4	25.0	21.6	20.2	24.4	41.9	27.8	22.3
Other	6.9	21.3	20.3	7.8	7.1	5.4	6.8	5.1	7.7

Source: *LearnInd CTS 2006;* ***Base:*** *all teachers not using computers in class;* ***Question:*** *Q12: "Why do you not use computers and/or the internet when teaching in class?"*

Attitudes on the Usefulness of ICT use in Teaching

Computers and the internet have arrived in Latvian schools, but the level of equipment offers plenty of room for improvement. The same applies to the number of teachers actively using ICT in class.

The share of teachers in Latvia – but also in the European Union in general – who believe that computers and the internet should not at all be used in schools, is very low and at 1%. Latvian teachers are positive towards the different purposes for ICT use in teaching and achieve high figures (above the European average) on attitudes that ICT should be used for letting pupils do exercises and practise (84%), letting pupils retrieve information in a self-directed manner (92%) and for collaborative and productive work by pupils (83%).

There are only minor differences across school types. A majority of Latvian teachers (59%) also believes that teaching about office tools should be an integral part of the teaching process. With this figure, the country ranks around the EU25 average figure. There are hardly any differences in this opinion across the different school types.

Access, Competence and Motivation for Using ICT and the Internet in Schools

Access

A majority of Latvian teachers are more or less satisfied with the technical access means at their schools: 61% state that their school is well equipped with computers and 70% express the opinion that their internet connection is fast enough. However, 71% wish there were better support and maintenance actions taken. In terms of content 32% state problems with respect to finding adequate learning materials and 20% argue that existing materials are of poor quality.

Competence in using ICT

Latvian teachers feel more competent in using e-mail and using a text processor programme but not at all confident with downloading and installing software and with using presentation software packages. Latvia takes the last or second last position on the availability of all these ICT-related skills among teachers irrespective of school type. These are alarming figures and urgently demand an active policy and a multitude of activities to improve the present ICT competence and skills of teachers in Latvia.

Attitudes on the Usefulness of ICT use in Teaching in Latvia 2006

Percentage of teachers saying computers/internet should be used for …	Total LV	Total EU25	Total NMS10	Educational Level				Type of locality	
				Primary	Lower secondary	Upper secondary	Vocational		Thinly populated
Letting pupils do exercises and practise	84.1	79.9	78.8	87.8	88.0	81.8	74.5	76.7	86.9
Letting pupils retrieve information in a self-directed manner	91.8	85.0	87.8	92.1	93.0	92.1	90.9	90.7	92.2
Teaching about office tools	58.8	61.3	51.0	60.9	61.2	56.8	59.5	55.2	60.2
Collaborative and productive work by pupils	83.2	80.5	67.2	85.1	84.3	86.2	87.3	83.1	83.2
Computer/internet should not be used for any of these in teaching	1.1	0.6	0.5	1.4	0.6	0.4	1.3	2.3	0.7

Source: *LearnInd CTS 2006;* ***Base:*** *all teachers;* ***Question:*** *Q13: "What do you think for what computers and the internet should be used for in teaching?"*

Teachers' access, competence and motivation for using ICT in class 2006

Percentage of teachers agreeing or strongly agreeing:	Total LV	Total EU25	Total NMS10	Educational Level: Primary	Lower secondary	Upper secondary	Vocational	Subject of teaching: General primary	Literature and languages	Humanities and social sciences	Science, maths, computer sciences	Physical, artistic, crafts education	Vocational education
Access													
Our school is well equipped with computers [a]	61.1	74.2	76.5	60.1	61.8	65.3	69.0	57.9	62.2	55.2	61.6	62.7	*61.7**
The internet connection we have is sufficiently fast [b]	69.9	77.2	78.2	69.2	69.1	75.4	76.6	68.7	69.8	67.9	70.0	68.5	*80.6**
Better technical maintenance and support is required in our school [c]	70.9	64.8	64.6	72.8	73.4	66.4	61.9	74.9	68.5	76.8	71.7	73.4	*61.4**
Existing teaching materials on the Internet are of poor quality [d]	19.8	29.9	29.3	19.0	19.5	21.6	24.6	19.2	16.8	20.6	16.7	20.7	*35.3**
It is hard to find adequate learning materials for teaching [e]	31.8	38.7	30.5	31.4	31.6	34.1	39.6	32.7	26.8	39.1	29.4	33.8	*42.7**
Motivation													
Pupils are more motivated and attentive when computers and the internet are used in class [f]	84.3	86.3	90.1	84.4	85.1	80.2	75.4	91.5	88.6	81.2	85.4	80.3	*71.9**
Using computers in class does not have significant learning benefits for pupils [g]	15.7	20.7	9.5	15.0	15.4	17.1	15.4	14.7	14.3	12.3	17.7	14.2	*21.0**
Competence													
Teachers in our school do not have sufficient computer skills [h]	33.8	42.0	30.6	33.3	33.8	36.9	34.7	22.5	32.3	39.0	35.1	31.7	*31.9**
Competence / computer skills (Percentage of teachers who feel very confident at…)													
Using text processors [i]	31.1	65.0	63.2	29.4	30.8	33.6	*36.3**	*29.6**	25.9	38.6	32.7	25.0	*50.1**
Creating electronic presentations [j]	15.3	34.0	41.0	13.3	14.7	15.3	*20.5**	*7.8**	6.3	19.5	20.5	11.8	*39.8**
Using e-mail [k]	39.2	65.9	64.8	36.4	37.5	44.0	*57.5**	*29.6**	33.4	44.1	42.5	29.4	*79.9**
Downloading and installing software [l]	9.8	35.8	34.6	8.2	8.0	12.2	*20.2**	*3.9**	4.5	12.9	14.0	4.1	*19.8**

Source: *LearnInd CTS 2006;* ***Base:*** *a-h: All teachers; i-l: Teachers using computers in class.* ***Question:*** *a-h Q14, i-l Q11.* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases.*

Motivation for ICT use in Schools

Over 80% of Latvian teachers see significant learning benefits for pupils using computers in class and many say that pupils are more motivated and attentive when computers and the internet are used in class. They are also more positive about the benefits of the use of ICT for pupils than their counterparts in many other European countries. This shows that at least the motivation to ICT use in schools is existing and positive.

ICT Readiness of Teachers – the ACM Model

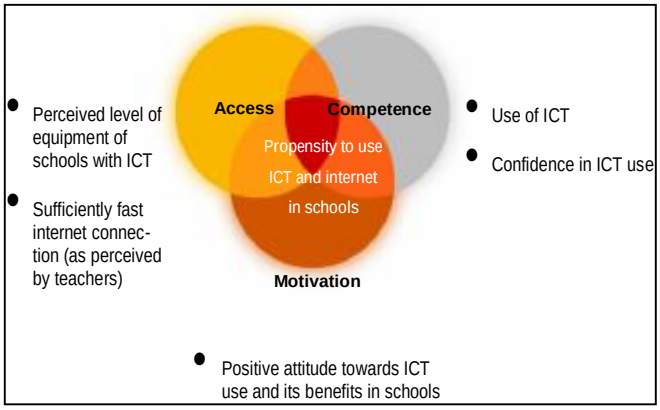
The ACM model as developed by Viherä and Nurmela (2001)[3] was applied in LearnInd to generate a typology according to the "propensity to the use of computers and internet by teachers in classroom situations at schools".

The typology in the figure below takes account of the three main categories of preconditions which need to be given for a school to make use of computers and the internet in the teaching process in classrooms, computer labs etc.

These are: access (to computers and the internet at school), competence (in using the computer software and the internet, and applying it for teaching purposes), and motivation (gauged through the attitude that using computers in classrooms results in significant learning benefits). In the present application of the ACM model data from the Classroom Teacher Survey (CTS) was used. Therefore "access" for instance is to be understood as a perceived level of computer equipment at schools and teachers' satisfaction therewith rather than an objective measure of equipment status.

Any attempt to group the classroom teachers according to their propensity to becoming users of computers and the internet in their teaching processes needs to take account of these three dimensions.

The Access-Competence-Motivation Model



38% of European teachers dispose of sufficient access to the internet at school, the necessary competence in using ICT in class and are motivated to its use. With only 15% of the teachers belonging to this group, Latvia ranks at 27th placing the country at the very bottom of European countries (the range on this indicator is from the UK with 60% to Latvia with 15%).

The as yet insufficient internet connection in many schools and a lack of motivation of teachers for using ICT are the most critical issues for a wider uptake of computers and the internet in schools in Europe. 20% of European teachers indicate insufficient computer equipment and the low speed of internet connection at their school as a key barrier. 14% show a lack of motivation, i.e., they are of the opinion that using computers in class does not result in significant learning benefits.

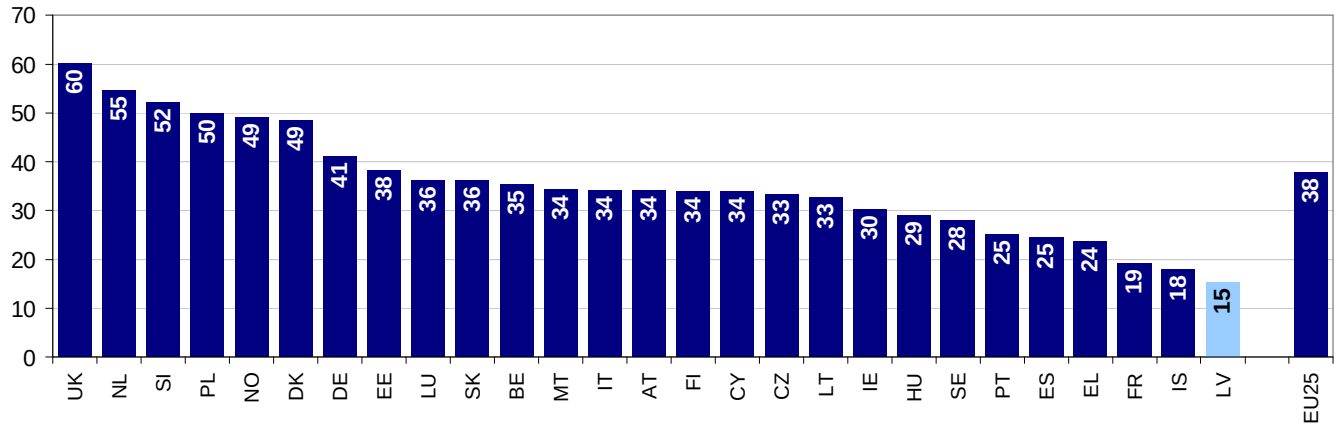
The situation in Latvia has already been described above and shows that ICT access and competence of Latvian teachers leaves a lot of room for improvement but motivation and interest for ICT use in class among teachers are substantial.

Access, Motivation and Competence of Teachers for Using ICT in Schools in Latvia 2006

LV	EU25	Access	Competence	Motivation
12.0	4.3	~~Access~~	~~Competence~~	~~Motivation~~
7.4	3.9	**Access**	~~Competence~~	~~Motivation~~
10.9	9.7	~~Access~~	**Competence**	~~Motivation~~
16.1	5.0	~~Access~~	~~Competence~~	**Motivation**
7.4	13.7	**Access**	**Competence**	~~Motivation~~
12.1	4.8	**Access**	~~Competence~~	**Motivation**
18.9	20.7	~~Access~~	**Competence**	**Motivation**
15.2	37.9	**Access**	**Competence**	**Motivation**
100	100			

Percentage of teachers. ***Source:*** *LeanInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *See endnote* [4]

ICT Readiness of Teachers in Latvia: Percentage of Teachers Fully Ready to use Computers in Class (ACM Indicator) 2006



Source: *LeanInd CTS 2006;* ***Base:*** *All teachers.* ***Question:*** *See endnote 5*

ANNEXES

Methodology Report

Universe / Sample population

In order to assure the comparability of school levels in all countries UIS-OECD-EUROSTAT "Mapping of national education programmes to ISCED 97 for school academic/year 2002/2003" [5] was used for composing the sample frame. Based on this, each country divided its school system into ICSED codes and made different combinations that existed in its country.

Sampling frame and method

The sample was composed using official databases, which contained contact data of schools. In the majority of countries the sample was drawn from a database received from the Ministry of Education.

For each country a separate template of sample frames was composed by TNS Emor. These templates contained data about school types across regions as well as location type. School types were defined based on the ISCED codes provided in UIS-OECD-EUROSTAT. Location type distribution was made according to the Eurostat type of locality classification which differentiates densely populated, intermediate and thinly populated municipalities[6]. Apart from that, each country was divided into 3-7 regions depending on the size of a country.

Based on the data provided by countries, TNS Emor composed quotas for each country. Two level stratification was used – quotas for first stage, random sample for second. The quotation for region by school type and location type was endorsed. Simple random selection was conducted by the local agency or the local source of the contact base. Both private and public schools were included in the sample. It was also obligatory to include schools of other teaching languages than the official language of a country in the sample.

Simple random sampling was used inside a quota cell. This means that if the quota for primary schools in region1 was 100 and the total number of primary school in this region was 800, then a random sample selection was be made among those 800 schools. This covered also both private and public schools and schools of other teaching languages than the official language of a country.

No more than 50% of interviews could be made in one school level. At least 10% of respondents had to be from schools which provided professional/vocational or combined programme of vocational and upper secondary level education (in case a country did not have special quota for those schools). It did not matter whether vocational education level was coded as ISCED 3 or ISCED 4.

There were no duplications in samples of head teacher and classroom teacher surveys. This was only allowed in countries with small universe sizes (e.g. Malta, Cyprus, Iceland, Estonia, Latvia etc) and in cases where the last quota cells were very difficult to achieve or there were not enough schools of a certain type. The priority was to include as many different schools as possible. In both surveys, 5 attempts were made before giving up and only if the respondent refused was this person not contacted again.

The CATI programme generated a randomly chosen letter. The interviewer asked for the person with a surname that started on the generated letter. If there was more than one teacher whose surname started with the selected letter, the person who was first alphabetically was chosen. If the correct person was not available, an appointment was made. At least 5 attempts were made before taking another teacher.

Only in Malta, due to instructions dictated by the Education Department, would the Head Teacher randomly select a teacher that would be available for an appointment during which they would be interviewed.

Number of interviews conducted (HTS / CTS)

Country		Head Teachers	Classroom teachers
BE	Belgium	450	807
CZ	Czech Republic	500	1000
DK	Denmark	315	848
DE	Germany	450	901
EE	Estonia	400	851
EL	Greece	500	1000
ES	Spain	518	1022
FR	France	501	869
IE	Ireland	403	626
IT	Italy	500	900
CY	Cyprus	150	600
LV	Latvia	451	902
LT	Lithuania	457	908
LU	Luxemburg	82	277
HU	Hungary	500	1000
MT	Malta	100	200
NL	Netherlands	515	890
AT	Austria	320	450
PL	Poland	500	1000
PT	Portugal	450	900
SI	Slovenia	253	460
SK	Slovakia	502	1000
FI	Finland	318	601
SE	Sweden	200	450
UK	United Kingdom	450	905
IS	Iceland	177	424
NO	Norway	494	708
TOTAL		**10456**	**20499**

Fieldwork

Fieldwork was coordinated by the TNS Emor and conducted in cooperation with its local TNS offices excluding Iceland, Cyprus, Austria, Slovenia and Malta where TNS does not have offices. In these countries partners with whom TNS had previous experience were used.

Pilot interviews prior to the regular fieldwork were conducted with 20 schools in both target groups in Estonia and Greece in February 2006, in order to test the questionnaire (structure, comprehensibility of questions).

Between March and April 2006, surveys among head teachers (head teacher survey - HTS) and classroom teachers (CTS) were carried out in 27 European countries. TNS Emor was responsible for the fieldwork.

Weighting schemes

After the fieldwork, weighting coefficients were computed using region, location type and school type.

Statistical accuracy of the survey: confidence intervals

Statistics vary in their accuracy, depending on the kind of data and sources. A "confidence interval" is a measure that helps to assess the accuracy that can be expected from data. The confidence interval is the estimated range of values on a certain level of probability of error. Confidence intervals for estimates of a population fraction (percentages) depend on the sample size, the probability of error, and the survey result (value of the percentage) itself. Further to this, variance of the weighting factors has negative effects on confidence intervals.

The calculation of confidence intervals is based on the assumption of (quasi-) infinite population universes. In practice, however, in some countries and for some school levels the complete population of schools consists of only several hundred or even a few dozen of schools. In some cases, literally each and every school within a country-school type cell was contacted and asked to participate in the survey. This means that it is practically impossible to achieve a higher confidence interval through representative school surveys in which participation is not obligatory.

Country Background Data

Latvia has a declining annual population growth rate. The birth rate, which is at the lowest level in Europe, is accompanied by the highest infant mortality rate. 40% of the population lives in rural areas, which is top in Europe. A below average GDP per Capita is accompanied by a very high GDP Growth rate.

General Population Data for Latvia 2002/03[7]

Total population (000)	2,329
Annual population growth rate (%)*	-0.9
Population 0-14 years (%)	17
Rural population (%)*	40
Total fertility rate (births per woman) *	1.2
Infant mortality rate (0/00) *	10
Life expectancy at birth (years) *	70
GDP per capita (PPP) US$ *	9,275
GDP growth rate (%)*	6.4
* World Bank World Development Indicators	

Resources for Education in Latvia 2002/03

Pupil / teacher ratio (primary)	14
Public expenditure on education :	
as % of GDP	5.8
as % of total government expenditure	…
Distribution of public expenditure per level (%):	
pre-primary	…
primary	…
secondary	…
tertiary	…
unknown	…

The Educational System in Latvia[8]

In 2005, the number of people under 29 years of age was 860,000 (37.3% of the population). The number of children attending general education schools (age 7-19 years) was 315,633 in the school year 2004/05.

In the same year 246,370 pupils of Latvia were acquiring compulsory basic education. 312,308 or 99% attended public-sector schools funded by the central or local government authorities, 2,861 or 1% attended private schools. The official language of instruction in public sector schools is the state language – Latvian. However, residents of other nationalities have the right to education in other languages in private schools or public sector schools implementing minority education programmes (implemented bilingually, i.e. as Content and Language Integrated Learning – CLIL). In the school year 2004/05, 28.4% of pupils in general education schools received instruction in other languages.

The administration of education is organised at three levels – national, municipal and institutional. At **national** level the main decision-making bodies are *Saeima* (Parliament), Cabinet of Ministers and the Ministry of Education and Science. The Ministry is the main education policy-making institution. It issues the licences and credentials needed to open comprehensive education institutions, and sets educational standards along with teacher training content and procedures. The Ministries of the Interior, Welfare and Culture can also establish education and training institutions and supervise their administration and financing. Teachers working in the public sector are remunerated from the state budget.

The **local authorities** (in liaison with the appropriate ministry) can establish, reorganise or close education institutions, while observing education legislation. Cities and districts are responsible for preschool training institutions, primary schools, lower and upper secondary schools, with the exception of education and training institutions run directly by the central government, or those that are privately maintained.

Education institutions are relatively independent as regards organisation of their work, drawing up of internal regulations, appointment and responsibilities assumed by their teaching and technical staff and use of their resources. The Ministry of Education and Science is directly responsible for school inspection. Accredited private schools receive funds from the state for salaries of teachers if they provide accredited education programmes in the state language.

The use of ICT in Education[9]

The Ministry of Education and Science has been carrying out the school network information process since 1997. Schools are provided with computers and an internet connection. Teachers' training concerning the use of computers during the learning process is under implementation. On average, there is one computer per 16 pupils in every education institution. Whenever possible, IT is used during the learning process and at qualification examinations. E-learning is widely used in higher education institutions and is also being introduced at vocational education institutions. Computer science is a compulsory subject in all education institutions.

In order to provide the quality of higher education programmes, their competitiveness, further development in the common European higher education area, as well as opportunities for higher education to meet the demand, it is not only necessary to attract additional state funding, EU structural fund resources and private funding. Additionally, the improvement of legislation and regulations in the higher education field must be continued, buildings of higher education establishments must be renewed and updated and higher education establishments will be provided with modern equipment for studies, technologies and mainframe networks.

The Study

There is a lack of information on the actual use of ICT for learning in schools and for supporting political action in potential future programmes. It is necessary to clarify matters such as the educational vision of heads of schools, the current impact of ICTs on teachers' practice, support and training and on other factors for success in e-learning.

The objective of the study is to obtain estimates for the eEurope 2005 indicator on e-learning "number of pupils per computer with Internet connection (broadband/non-broadband)" and relate it to other possible indicators of educational use of ICT in compulsory education (e-learning in schools). The study looks at how Information and Communication Technologies (ICT) are used in schools.

The study is a continuation of the earlier benchmarking exercise for eEurope 2002.

It involved two surveys. Firstly of head teachers to obtain information on the schools and then of teachers to focus on their use of ICTs in the teaching process

This exercise is part of the Information Society monitoring and benchmarking process for which the Commission in cooperation with the Council defined benchmarking indicators.

Country Briefs

This document has been prepared by **empirica** based on own desk research and the above mentioned primary data sources: Head Teacher Survey (HTS) 2006 and Classroom Teacher Survey (CTS) 2006 in the EU25 member states, Iceland and Norway.

Altogether 27 LearnInd Country Briefs are available in a common format, one for each member of the enlarged European Union, Norway and Iceland.

Also a final report has been developed. It includes approximately 100 exhibits, more than 250 data tables and a report about the key results.

You can access and download these documents in PDF format (for free) from http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm.

More information

Check our results and achievements on: http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm. If you wish to be provided with more details, or to receive news and updates, please contact us at: **learnind@empirica.com** or get in touch with us.

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1 Note that "in class" means during lessons while teaching and does not denote a particular location such as a classroom.

2 Base (100%) = all teachers who have used a computer in class in the last 12 months.

3 Viherä, M-L, Nurmela, J (2001) "Communication Capability Is an Intrinsic Determinant for Information Age", in Futures, Volume 33, Issue 3-4:245-265.

4 Synthetic indicators: Access: Q14 (2) "Our school is well equipped with computers" and Q14 (3) "The internet connection we have is sufficiently fast ".

Competence: Q11 How confident do you feel... a) using a text processor, b) creating a presentation c) using e-mail, d) downloading and installing software. Threshold: Average of 2.5 or more on a 1-4 confidence scale

Motivation: Q14 (8); disagree with "Using computers in class does not result in significant learning benefits".

For full question wordings refer to questionnaire.

5 http://forum.europa.eu.int/Public/irc/dsis/edtcs/library?l=/public/unesco_collection/programmes_isced97&vm=detailed&sb=Title

6 Densely populated area refers to a set of closely related local units, each one of which having a density greater than 500 inhabitants per km2, and the total population of which being of at least 50 000 inhabitants; Intermediate area refers to a set of closely related local units that do not pertain to a densely populated area, each one of which having density greater than 100 inhabitants per km2, and where the total population is at least of 50 000 inhabitants or it refers to a set that is adjacent to a highly populated area. Thinly populated area (rural): refers to a set of closely related local units that are not part of a densely populated area, or of an intermediate area. (A set of local areas totalling less than 100 km², not reaching the required density, but entirely enclosed within a densely-populated or intermediate area, is to be considered to form part of that area. If it is enclosed within a densely-populated area and an intermediate area it is considered to form part of the intermediate area).

7 Source: http://www.uis.unesco.org/profiles/selectCountry_en.aspx (visited 28 March 2006)

8 Source: http://www.eurydice.org/Documents/struct2/frameset_EN.html (visited: 28 March 2006)

9 Source: http://europa.eu.int/comm/education/policies/2010/nationalreport_en.html (visited: 9 May 2006)